AMENDMENTS TO SPECIFICATION

Please amend numbered paragraph [0008] as follows:

When an [[LAM]] IAM message is detected on one link, the processor, sometimes referred to as a probe, detecting the IAM message must send a trigger message to other probes monitoring other links because other signaling messages, ACM, ANM, REL, and RLC messages, may take other link paths due to the load sharing on the SS7 network. After the IAM message containing one of the codes—origination point code (OPC), destination point code (DPC), or circuit identification code (CIC))—has been identified in a given link set (i.e., all links between, for example, a given SSP and a given STP, see **FIG. 2**), there is a fixed amount of time to alert all the probes monitoring the network links that further messages relating to the phone call are likely to be passing imminently. When sending the trigger between monitoring processors via a TCP/IP system, there is a possibility that bottlenecks inherent in the TCP/IP system will cause the trigger to be delayed between the processors. Thus, the ACM message, which follows the IAM message by 100 msec typically, may go undetected by the probes.

Please amend numbered paragraph [0028] as follows:

In accordance with the principles of the present invention, an operator investigating why a phone call is problematic uses a given element manager in the monitoring system to perform the investigation. Under the auspices of the given element manager, a trigger message issued by a probe detecting [[a]] phone number criteria entered by the operator is time stamped by the probe detecting the trigger message and broadcast by the probe to its respective element manager. The respective element manager broadcasts the trigger with time stamp to other element managers, which, in turn, send the trigger with the time stamp to respective probes. With the time stamp, each probe knows how much time has elapsed since the message was put onto the link on which the detecting probe monitors. Each probe within the network can then examine messages that arrived before the trigger time stamp. The time stamp, being incorporated in or associated with a trigger, provides a means for the probes to

identify which messages are out of order or are still sitting in respective probe buffers. Old messages so discovered are then processed as if in real-time.

AMENDMENTS TO CLAIMS

1. (currently amended) A call tracing system for use in a telephony system having nodes in relationship to one another by communication links carrying signaling messages being used to set up voice channels in the telephony system to facilitate calls, the call tracing system comprising:

a) a first probe that

    (i) ~~monitoring~~ monitors respective communication links for a triggering signaling link message[[s]] related to a given call; [[and]]

    (ii) upon detecting the triggering signaling link message matching the call, extracts call parameters from the initial triggering signaling link message;

    (iii) ~~issuing~~ issues a trigger ~~with a time stamp~~ including a timestamp, indicating the time of the initial signaling link message, and further including the call parameters in response to detecting [[a]] the triggering signaling link message related to the given call;

b) [[an]] a first element manager coupled to the first probe ~~so as to receive and to rebroadcast~~ that receives the trigger from the first probe and broadcasts the trigger; and

c) a second probe, distinct from the first probe, that

    (i) ~~monitoring~~ monitors communication links for signaling link messages,

    (ii) ~~having~~ has a buffer for the temporary storage of signaling link messages,

    (iii) ~~receiving~~ receives the trigger ~~rebroadcast by the element manager~~, [[and]]

    (iv) ~~examining~~ searches and discovers in the buffer ~~to look for~~ signaling link messages that match the call parameters and that were placed in the buffer before the second probe received the trigger, and transmits any matching messages discovered in the buffer to a computing device;

    (v) upon receiving the trigger, watches respective communication links for signaling link messages that match the call parameters and

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transmits any matching messages, detected passing through the respective communication links, to the computing device without intervening storage in the buffer.

2-5. (canceled)

6. (currently amended) A method for call tracing in a telephony system having nodes in relationship to one another by communication links carrying signaling messages being used to set up voice channels in the telephony system to facilitate calls, the method comprising the steps of:

a)　　entering telephone number criteria to be ~~detected~~ traced;

b)　　detecting at a first probe a triggering signaling link message [[with]] matching the telephone number criteria and extracting call parameters from the triggering signaling message;

c)　　issuing by the first probe a trigger ~~upon detecting the telephone number criteria~~ including a timestamp, which indicates the time of the triggering signaling link message, and further including the call parameters;

d)　　~~stamping of the trigger with a time stamp~~ receiving a trigger at a first element manager coupled to the first probe;

e)　　broadcasting the trigger message ~~to a second probe~~ by the first element manager;

f)　　placing signaling link messages ~~detected~~ at a second probe, distinct from the first probe, ~~in storage~~ into a temporary buffer;

g)　　receiving the trigger at the second probe;

[[g]]h)　　~~discovering signaling messages detected by the second probe before the second probe received~~ checking the buffer for any matching messages that occurred after the trigger message ~~by examining the signaling messages in the storage for messages related to the telephone number criteria~~ timestamp time but before the trigger was received at the second probe;

i)　　transmitting matching messages found in the buffer to a computing device;

j)　　watching respective communication links by the second probe for messages matching the call parameters; and

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k)   transmitting to the computing device messages matching the call parameters that are detected while watching respective communication links by the second probe, without intervening storage of such matching messages in the buffer.

7-20. (canceled)

21. (new) The call tracing system of claim 1, wherein a matching message detected by the second probe while watching the respective communication links is received by the computing device before the call ends.

22. (new) The call tracing system of claim 1, wherein any matching messages observed by the second probe while watching the respective communication links is transmitted by the second probe in real time.

23. (new) The call tracing system of claim 1, further comprising:
    d)   a second element manager, distinct from the first element manager and coupled to the second probe, that
        (i)   receives the trigger from the first element manager and transmits the trigger to the second probe, and
        (ii)   receives a matching message, which was discovered in the buffer or detected by watching the communication links, from the second probe; and
        (iii) retransmits the matching message to the computing device;
    and wherein each probe is coupled to exactly one element manager.

24. (new) The call tracing system of claim 23, wherein communications between at least two element managers are conducted across a wide area network.

25. (new) The call tracing system of claim 23, wherein communications among element managers, and between element managers and probes, are based on the TCP/IP protocol.

26. (new) The call tracing system of claim 23, wherein the computing device transmits a matching message upon receipt to the operator.

27. (new) The call tracing system of claim 1, wherein the computing device broadcasts the telephone number criteria to be traced.

28. (new) The call tracing system of claim 1, wherein the computing device receives a request for a telephone number criteria to be traced from an operator.

29. (new) The call tracing system of claim 1, wherein the computing device is an element manager.

30. (new) The call tracing system of claim 1, wherein the buffer is only searched for matching messages if the time at which the trigger is received by the second probe exceeds the timestamp time by a previously specified amount.

31. (new) The call tracing system of claim 1, wherein the triggering signaling message is an Initial Address Message (IAM).

32. (new) The call tracing system of claim 1, wherein the second probe stops watching communication links for signaling messages matching the call parameters after a previously specified interval beyond the timestamp time.

33. (new) The call tracing system of claim 1, wherein the second probe stops watching for signaling link messages matching the call parameters after receiving a disarming trigger.

34. (new) The call tracing system of claim 33, wherein a disarming trigger is issued by a third, not necessarily distinct, probe upon detection of a Release Call (RLC) message matching the call parameters.

35. (new) A call tracing system for use in a telephony system having nodes in relationship to one another by communication links carrying signaling messages being

used to set up voice channels in the telephony system to facilitate calls, the call tracing system comprising:

    a)   a first probe

        (i)   monitoring respective communication links for signaling link messages related to a given call and

        (ii)   issuing a trigger with a time stamp in response to detecting a signaling link message related to the given call;

    b) an element manager coupled to the first probe so as to receive and to rebroadcast the trigger; and

    c) a second probe

        (i)   monitoring communication links for signaling link messages,

        (ii)   having a buffer for the temporary storage of signaling link messages,

        (iii)   receiving the trigger with the time stamp rebroadcast by the element manager, and

        (iv)   examining the buffer to look for signaling link messages that were placed in the buffer before the second probe received the trigger,

wherein messages matching a signaling criteria found in the buffer within a time window related to the time stamp are processed as if seen in real time, and wherein the element manager broadcasts trigger information to at least one additional element manager so that any probe can be connected to any element manager without missing any signaling link messages.

36. (new) The method of claim 6, further comprising:

    l)   receiving a matching message, which is detected by the second probe passing across the communication links, by the computing device before the call ends.

37. (new) The method of claim 6, wherein transmitting to the computing device messages, which match the call parameters and which are detected while watching respective communication links by the second probe, occurs in real time.

38. (new) The method of claim 6, further comprising:

l)   receiving the trigger at a second element manager coupled to the second probe;

m)   receiving at the second probe the trigger from the second element manager;

n)   receiving at the second element manager a matching message and retransmitting the matching message; and

o)   receiving at the computing device a matching message from the second element manager;

wherein each probe is coupled to exactly one element manager.

39. (new) The method of claim 38, further comprising:

p)   broadcasting by the computing device the telephone number criteria to be traced.

40. (new) The method of claim 39, further comprising:

q)   receiving by the computing device the telephone number criteria to be traced.

41. (new) The method of claim 40, further comprising:

r)   transmitting by the computing device a matching message upon receipt to an operator.

42. (new) The method of claim 41, wherein the computing device is an element manager.

43. (new) The method of claim 38, wherein communications between at least two element managers are conducted across a wide area network.

44. (new) The method of claim 38, wherein communications among element managers, and between element managers and probes, are based on the TCP/IP protocol.

45. (new) The method of claim 6, wherein checking the buffer for matching messages is only done if the time at which the trigger is received by the second probe exceeds the timestamp time by a previously specified amount.

46. (new) The method of claim 6, wherein the triggering signaling message is an Initial Address Message (IAM).

47. (new) The method of claim 6, wherein the second probe stops watching communication links for signaling messages matching the call parameters after a previously specified interval beyond the timestamp time.

48. (new) The method of claim 6, further comprising:
    l)   terminating watching for signaling link messages matching the call parameters after the second probe receives a disarming trigger.

49. (new) The method of claim 48, further comprising:
    m)   issuing a disarming trigger by a third, not necessarily distinct, probe upon detection of a Release Call (RLC) message matching the call parameters.